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A REVISION OF THE MOSS GENUS, HYMENOSTYLIELLA,
WITH DESCRIPTION OF SPOROPHYTE

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Hymenostyliella is among those Pottiaceous genera having broadly lanceolate leaves with incurved margins and circinnate points when dry, similar vegetatively to Timmiella and Hyophila. The leaf cells bulging adaxially in a single layer and with greatly thickened corners prompted Bartram (1939) to establish a new genus even without fruiting material.

Until the present, the genus has been known only from Luzon Island in the Philippines, but a series of specimens has recently been obtained from around a sulfur spring in the Kumaon District of northern Uttar Pradesh, India. This material bears sporophytes which are lateral from small axillary perichaetia. Slight peculiarities of the upper surface of the costa recall a Brazilian species, Timmiella alata Herz., and I also place that species in Hymenostyliella. The following descriptions and key are intended to help in further understanding the genus.

Hymenostyliella Bartram, Philippine Journ. Sci. 68: 108. 1939.

Stems densely foliate, erect, with central strand. Leaves oblong lanceolate, strongly incurved when dry with inrolled margins, widely spreading when moist; costa percurrent or excurrent in short mucro, in section with two stereid bands, adaxial surface with row ridges or distinct wings; upper leaf cells isodiametric, unistratose, flat abaxially, highly convex adaxially; basal cells oblong, more lax. Perichaetia in lateral buds. Setae elongate, smooth; urn erect, smooth; peristome lacking; operculum very long rostrate, longer than urn; calyptra not seen.

Key to the species of Hymenostyliella

1. Adaxial surface of costa with only low serrulate ridges H. llanosii
1. Adaxial surface of costa with 2 large wings H. alata

The following synonymy and descriptions have been compiled from the literature and from the collections of H. llanosii from India.

Hymenostyliella llanosii (Broth.) H. Robinson, comb. nov.

Barbula llanosii C. Müll., Gen. Musc. Frond. 445. 1900.
nom. nud.

Timmiella llanosii [C. Müll.] Broth., Nat. Pfl. 1(3): 396.
1902.

Barbula pseudo-tortella C. Müll. in Broth., Nat. Pfl. 1(3):
396. 1902. nom. nud.

Hymenostylium involutum Card. & Thér., Bull. Soc. Bot.
Genève 26: 82. 1936.

Hymenostyliella involuta (Card. & Thér.) Bartr., Philippine
Journ. Sci. 68: 108. 1939.

Rather robust plants with stems 2-3 cm high, stems sparsely branching, rather densely tufted, densely foliate with leaves often in interrupted tufts, radiculose throughout. Leaves narrowly linear elliptical, sharply acute, 4-5 mm long, 0.5 mm wide, canaliculate-concave, margins inflexed and slightly repand in upper half, erect and entire below; base not or scarcely narrower; costa stout, to 120 μ wide at base, percurrent; adaxial cells of upper costa usually in 3 rather prominent rows, short with distal ends projecting, rows viewed from side as very low serrulate ridge; upper cells of lamina rather large, 10-12 μ wide, 10-15 μ long, lumens angular with prominent thickened corners, abaxial surface flattened with a very thick wall, adaxial surface strongly mamilllose with very fine striations on surface; basal cells colorless, not enlarged, quadrate to short rectangular, 10-12 μ wide, 8-20 μ long with rather irregularly thickened walls, a few cells at the margin very narrow.

Dioicous. Perigonal numerous on male plants in axils of leaves, minute, to 0.5-0.6 mm long; bracts broadly ovate with short sharp acumination; costa slender, 20-25 μ wide; cells smooth, median and basal thin walled. Perichaetia ca. 2.0 mm long; inner leaves with colorless bases to 0.5 mm long, slender green tips 0.2 mm wide, costa to 50 μ wide at base; upper cells except marginal rather mamilllose adaxially, with thickened angles. Sporophyte reddish-brown; setae ca. 4 mm long, urn 1.0 x 0.5 mm, smooth and shining castaneous, few stomates at the base, exothecial cells mostly ca. 25 μ wide, 25-50 μ long, near mouth 3-4 rows quadrate 10-15 x 15 μ ; operculum erect, dark throughout, to 1.5 mm long. Spores 10-12 μ in diam., very minutely papillose.

Philippine Islands. Luzon: Bulacan Prov.; near the town of Calumpit, Llanos s.n. Rizal Prov.; Montalban, Bartlett 14375, 14393.

India. Uttar Pradesh: W. Himalayas; Dehra Dun, Sulphur Springs, moist rocky cliffs and moist rocks, 768 m elev., June 1968, G.B. Pant Des (1) DS 9/1968, Des (2) DS 10/1968, Des (3) DS 11/1968.

The new collections represent a 3000 mile extension of the

known range of the species. The species may be more common than the collections indicate, but it must fruit rarely.

The fact that Brotherus validated Müller's epithet seems to have been overlooked by later authors. The simple descriptive statement in German by Brotherus (1902) was sufficient for validation at that time.

Hymenostyliella alata (Herz.) H. Robinson, comb. nov.

Timmiella alata Herz., Arch. Bot. Est. S. Paulo 1(2): 61.
1925.

Stems to 1.5 cm high, sparsely branched, rigid, densely foliate. Leaves narrowly oblong-lanceolate, acute, 2.5 mm long, 0.3 mm wide, canaliculate-concave, cucullate, sometimes mucronate, all but basal margins broadly involute; base scarcely broader than blade, short elliptical; nerve percurrent, bearing 2 prominent wings adaxially; wings ca. 12 cells high, 1 cell thick; cells of upper lamina small, mamillate adaxially; basal cells rectangular, yellowish, subpellucid. Dioicous? Sporophyte unknown.

Brazil. without definite locality, Ititzelburg s.n.

Material has not been seen, but the combination of leaf characters and especially the adaxial surface of the costa indicates close relationship to Hymenostyliella llanosii (Broth.) H. Robinson. Chen (1941) mentioned Herzog's species in his discussion of Hymenostyliella but apparently did not notice the slight ridging on the costa of H. llanosii. Additional material of H. alata should be sought and examined to confirm the position of the perichaetia.

Literature Cited

- Bartram, E. B. 1939. Mosses of the Philippines. Philippine Journ. Sci. 68: 1-437.
- Brotherus, V. F. 1902. Pottiaceae. Die Natürlichen Pflanzenfamilien 1(3): 214: 385-432.
- Chen, P. 1941. Studien über die ostasiatischen Arten der Pottiaceae. I, II. Hedwigia 80: 1-76, 141-322.